

WHAT IS CLAIMED IS:

1. A power distributor for distributing electric power from a power source mounted on a vehicle to a plurality of electronic units, the power distributor comprising:
 - an input terminal connected to the power source;
 - a plurality of output terminals connected to each of electronic units;
 - a plurality of semiconductor switching elements having a first current flowing terminal provided corresponding to the output terminals and connected to the input terminal, a second current flowing terminal connected to the output terminals, and a current flow control terminal into which a signal for controlling the current flowing between the first and second current flowing terminals is inputted;
 - a control circuit for forcibly turning off the semiconductor switching element when the current flowing through any one of semiconductor switching elements exceeds a predetermined cut-off current; and
 - a fuse arranged in series with each of the semiconductor switching elements, wherein when the semiconductor switching elements are not normally turned off, the fuse is fused to protect its downstream side circuit from the over current.
2. The power distributor according to claim 1, wherein the fuse has a fusing characteristic on the larger current side than the cut-off current.
3. The power distributor according to claim 2, wherein the fuse has a fusing characteristic on the larger current side than the allowable current of the semiconductor switching element.
4. The power distributor according to claim 1, wherein the fuse is provided in the middle portion of each of output terminals.
5. The power distributor according to claim 4, wherein the output terminals are formed of metallic plate, and are divided into a terminal main body portion connected to the outer circuit and an element connection portion connected to the second current flowing terminal of the semiconductor switching element; and
 - the fuse is directly connected to the terminal main body portion and the element connection portion in such a manner that the both portions are connected to each other.
6. The power distributor according to claim 5, wherein both ends of the fuse are respectively connected to the end portion of the terminal main body portion and the end portion of the element connection portion.

7. The power distributor according to Claim 4, further comprising a case for accommodating the semiconductor switching elements, the case having a separation portion protruding toward a case main body of the case side to separate each of fuses from each other.

8. The power distributor according to Claim 7, wherein the case comprises:
a case main body in which the semiconductor switching elements are assembled; and

a cover attached to the case main body to cover the semiconductor switching elements, the cover structured so that the separation portion is provided on the rear surface of the cover to protrude toward the case main body side,

wherein under the condition that the cover is attached to the case main body, each of fuses is separated from each other by the separation portion.

9. The power distributor according to claim 4, wherein the output terminals and the input terminal are formed of metallic plate; and

the output terminals and the input terminal are arranged to be aligned on the same plane perpendicular to its thickness direction.

10. The power distributor according to claim 9, further comprising:

a control terminal connected to the current flow control terminal of each of semiconductor switching elements,

wherein the control terminal, the input terminal and the output terminals are formed of metallic plates, and are arranged to be aligned on the same plane perpendicular to its thickness direction.

11. The power distributor according to Claim 10 further comprising a control circuit board in which the control circuit is assembled and arranged in almost parallel to the plane on which the input terminal, the output terminals and the control terminal are arranged,

wherein the input terminal, the output terminal and the control terminal are electrically connected to the control circuit board.

12. The power distributor according to Claim 11, wherein the control circuit calculates a value corresponding to the current value flowing through each of semiconductor switching elements according to the difference between the voltage of the input terminal and the voltage of each of output terminals; and

when the value exceeds a predetermined cut-off current, a control signal to forcibly turn off the semiconductor switching element is outputted to the current flow control terminal of the semiconductor switching element through the control terminal.

13. The power distributor according to claim 8, wherein each of the terminals arranged on the same plane is integrated with each other by the resin mold, and the case main body is structured by the resin mold.

14. The power distributor according to claim 13, wherein a window to expose a middle portion of each of output terminals is provided in the case main body, and each of the fuses is provided on the output terminal portion exposed from the window.